

## Bering Sea Integrated Ecosystem Research Project B92: Top predator hotspot persistence

**Project #:** B92

**Title:** Top predator hotspot persistence

**Principal Investigator(s) and Recipient Organization(s):**

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**Contract Period and Amount of Funding:** January 1, 2008 – September 30, 2012

**Report Period:** May 1, 2009 – September 30, 2009

**Report Date:** September 25, 2009

**Lead Author of Report:** Mike Sigler

**Proposed timeline and milestones within report period:**

<i>What</i>	<i>Who</i>	<i>Start ( 2009)</i>	<i>Other key dates</i>
Complete NPRB progress reports	<b>Sigler</b>	April, October	Semi-annually 2008-2012

**Project Summary:**

Core goal: The top predator hotspot persistence study will quantify the distributions of pelagic forage fish and determine whether apex predators are associated with locations where prey concentrations persisted across years (hot spots). Seabird and cetacean foraging locations from at-sea visual surveys will be analyzed in relation to prey type and abundance data.

Hypotheses addressed: This project addresses BSIERP hypothesis 4. Hypothesis 4 states that: Climate and ocean conditions influencing circulation patterns and domain boundaries will affect the distribution, frequency and persistence of fronts and other prey-concentrating features and thus the foraging success of marine birds and mammals largely through bottom-up processes. Specifically:

- a. Climate-ocean changes will displace predictably located, abundant prey (hot spots) necessary for successful foraging by central place (seabirds and fur seals while nurturing young) and hot spot (baleen whales, walrus) foragers.
- b. Central place foragers will shift their diet, foraging locations or rookery locations to increase foraging opportunities (based on differential foraging success).

**Progress Summary:** No project activities were planned for this reporting period. Data for 2009 were collected from acoustic (B58) and seabird (B64) surveys including pollock and euphausiid density (Patrick Ressler) and seabird density (Kathy Kuletz). These projects are scheduled to send 2009 data to the hot spot persistence project in December 2009. No whale survey (B66) was scheduled for 2009 and the next survey is scheduled for 2010.

**Lessons learned and project adjustments:** None.

**Integration activity:** Mike Sigler participated in Lead PI and SAB meetings.

**Education and Outreach:** Mike Sigler presented a seminar on climate and fisheries. The seminar includes a description of the role of the Bering Sea Project in improving understanding of the Bering Sea

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ecosystem. A version of the seminar is posted at [http://bsierp.nprb.org/posted/home/02.08\\_climate\\_and\\_fisheries\\_sigler.pdf](http://bsierp.nprb.org/posted/home/02.08_climate_and_fisheries_sigler.pdf). Mike Sigler has presented the seminar several times and twice during this reporting period including:

- 3<sup>rd</sup> Symposium on the Impacts of an Ice-Diminishing Arctic on Naval & Maritime Operations, Annapolis, Maryland, June 11, 2009
- Ecosystem Studies of Sub-Arctic Seas (ESSAS), Scientific Steering Committee meeting, Seattle, Washington, June 16, 2009

Mike Sigler participated in the ESSAS Annual Science Meeting in Seattle, Washington during June 17-18, 2009. The Bering Sea Project is participating as a regional program within ESSAS.

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**Next year's Work plan (not part of the 5 page target length):**

**BSIERP B92, Top predator hotspot persistence, Mike Sigler, [Mike.Sigler@noaa.gov](mailto:Mike.Sigler@noaa.gov), 907-789-6037**

2009-2012 Tasks, Assignments, Timeline

<i>What</i>	<i>Who</i>	<i>Start (2009)</i>	<i>Other key dates</i>
Receive data from acoustic (B58), whale (B66) and seabird (B64) surveys	<b>Sigler, Kuletz, Friday, Wilson</b>	Annually December 2009-2010	
Complete NPRB progress reports	<b>Sigler</b>	Semi-annually (April, October) 2009-2012	
Complete persistence analysis	<b>Sigler, Kuletz, Friday, Wilson</b>	March 2011	
Supply data to data manager	<b>Sigler</b>	June 2011	
Complete manuscript	<b>Sigler, Kuletz, Friday, Wilson</b>	September 2011	